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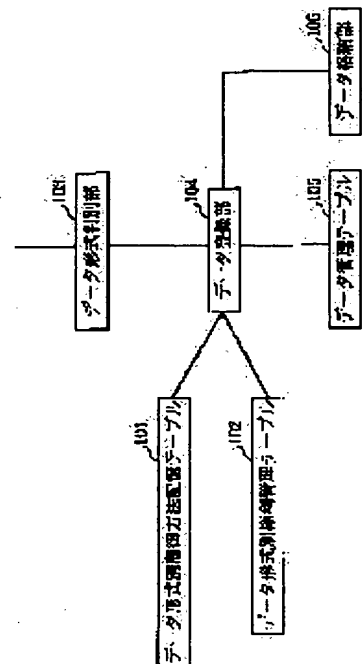
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(54) METHOD AND DEVICE FOR DATA MANAGEMENT AND RECORDING MEDIUM WITH DATA MANAGEMENT PROGRAM RECORDED

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a data management device which protects digital literary works which are delivered through a network without the addition of control information like right information.

SOLUTION: A data form discrimination part 103 takes out distributed contents from the outside or reads out non-ciphered contents from a recording medium by user's choice. In the case of a 'CD', a data registration part 104 enciphers contents to write them in a data storage part 106 and reads out right information from a data form-classified right management table 102 to write the data ID, encryption information, right information, and the file name in a data management table 105 and writes encryption information and right information in the data storage part 106.



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CLAIMS

[Claim(s)]

[Claim 1] It is data control equipment which matches and manages the digital work and access information which are circulating. An access information storage means by which the access information which includes at least the playback access information which shows whether playback of a digital work is permitted for every class of digital work is memorized beforehand, A work storage means and a work acquisition means to acquire the digital work with which it is circulating and access information is not added from the exterior, A formal distinction means to distinguish the class of acquired digital work, and the access information read-out means which reads the access information corresponding to the class of acquired digital work from said access information storage means, The work write-in means which writes said acquired digital work in said work storage means, Data control equipment characterized by having the access information write-in means which matches with said digital work written in said work storage means, and writes said read access information in said work storage means.

[Claim 2] Said work write-in means is data control equipment according to claim 1 characterized by adding said access information further read to said digital work written in said work storage means.

[Claim 3] It is data control equipment according to claim 1 which said access information shows further whether said record access information permits check-out including record access information, and is characterized by said check-out being reproducing to the exterior a digital work and the playback access information it corresponding.

[Claim 4] For said number of check-out upper limits, said record access information is data control equipment according to claim 3 characterized by showing the upper limit of the count to check out including the number of check-out upper limits.

[Claim 5] For said migration access information, said access information is data control equipment according to claim 1 characterized by showing whether it permits moving a digital work and corresponding access information to the exterior further including migration access information.

[Claim 6] the data control equipment according to claim 1 characterized by said data control equipment including a playback means to reproduce said digital work which carried out reading appearance of said digital work and the corresponding access information, and carried out reading appearance further based on the access information which carried out reading appearance from said work storage means.

[Claim 7] The digital work and access information which are circulating are matched and managed. For every class of digital work An access information storage means by which the access information which includes at least the playback access information which shows whether playback of a digital work is permitted is memorized beforehand, The work acquisition step which acquires from the exterior the digital work with which it is the data control approach used with data control equipment equipped with a work storage means, and is circulating, and access information is not added, The formal distinction step which distinguishes the class of acquired digital work, and the access information read-out step which reads the access information corresponding to the class of acquired digital work from said access information storage means, The work write-in step which writes said acquired digital work in said work storage means, The data control approach characterized by

including the access information write-in step which matches with said digital work written in said work storage means, and writes said read access information in said work storage means.

[Claim 8] Said work write-in step is the data control approach according to claim 7 characterized by adding said access information further read to said digital work written in said work storage means.

[Claim 9] It is the data control approach according to claim 7 which said access information shows further whether said record access information permits check-out including record access information, and is characterized by said check-out being reproducing to the exterior a digital work and the playback access information it corresponding.

[Claim 10] For said number of check-out upper limits, said record access information is the data control approach according to claim 9 characterized by showing the upper limit of the count to check out including the number of check-out upper limits.

[Claim 11] For said migration access information, said access information is the data control approach according to claim 7 characterized by showing whether it permits moving a digital work and corresponding access information to the exterior further including migration access information.

[Claim 12] the data control approach according to claim 7 characterized by said data control approach containing the playback step which reproduces said digital work which carried out reading appearance of said digital work and the corresponding access information, and carried out reading appearance further based on the access information which carried out reading appearance from said work storage means.

[Claim 13] The digital work and access information which are circulating are matched and managed. For every class of digital work An access information storage means by which the access information which includes at least the playback access information which shows whether playback of a digital work is permitted is memorized beforehand, It is the record medium which has memorized the data management used with data control equipment equipped with a work storage means and in which computer reading is possible. Said data management The work acquisition step which acquires the digital work with which it is circulating and access information is not added from the exterior, The formal distinction step which distinguishes the class of acquired digital work, and the access information read-out step which reads the access information corresponding to the class of acquired digital work from said access information storage means, The work write-in step which writes said acquired digital work in said work storage means, The record medium characterized by including the access information write-in step which matches with said digital work written in said work storage means, and writes said read access information in said work storage means.

[Claim 14] Said work write-in step is a record medium according to claim 13 characterized by adding said access information further read to said digital work written in said work storage means.

[Claim 15] It is the record medium according to claim 13 which said access information shows further whether said record access information permits check-out including record access information, and is characterized by said check-out being reproducing to the exterior a digital work and the playback access information it corresponding.

[Claim 16] For said number of check-out upper limits, said record access information is a record medium according to claim 15 characterized by showing the upper limit of the count to check out including the number of check-out upper limits.

[Claim 17] For said migration access information, said access information is a record medium according to claim 13 characterized by showing whether it permits moving a digital work and corresponding access information to the exterior further including migration access information.

[Claim 18] the record medium according to claim 13 characterized by said data management containing the playback step which reproduces said digital work which carried out reading appearance of said digital work and the corresponding access information, and carried out reading appearance further based on the access information which carried out reading appearance from said work storage means.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the technique which protects especially a digital work about the system which circulates a digital work.

[0002]

[Description of the Prior Art] The approach of distributing record media with which the digital work was recorded, such as CD and CD-ROM, in case ordinary users are provided with the digital work which informational digitization progressed in recent years and was expressed using multimedia, and the approach of making go via a network and distributing a digital work are used well.

[0003] In the case of the former, ordinary users can equip a personal computer with distributed CD, and can play and enjoy the digital work currently recorded on CD, for example, music. In the case of the latter, a digital work is downloaded and used for each personal computer using the communication facility of a personal computer. The music distribution system using a contents control system as the example is indicated by "music distribution MATTANASHI" (Nikkei electronics No. 738 PP 87-111, Nikkei Business Publications, March 8, 1999 issuance). The file B which consists of control information, a decryption key of File A, etc. in which the playback of File A and File A which consists of an enciphered music content in this contents control system, authorization, disapproval of a copy, etc. are shown is distributed via a network, and it judges [whether it is possible in playback and the copy of File A, and] using the control information included in File B at the time of music playback.

[0004] According to such a music distribution system, a work can be protected from an unjust activity by adding a fixed limit to playback and the copy of contents using the control information which shows playback, authorization, disapproval of a copy, etc.

[0005]

[Problem(s) to be Solved by the Invention] however, in the conventional music distribution system By adding a fixed limit to playback and the copy of a work using the control information which shows playback, authorization, disapproval of a copy, etc. which are contained in the negotiation contents distributed via the network Digital works, such as music currently recorded on the contents distributed via a network, without adding said control information of what can protect a work, CD, etc. Since the control information which generally is not enciphered and shows playback, authorization, disapproval of a copy, etc. is not added, either When a personal computer etc. is used, it can reproduce or copy without a limit of the digital work currently recorded on said CD etc., and there is a trouble that protection of a digital work cannot fully be performed.

[0006] protection of the negotiation contents distributed via the network in order that this invention might solve the above-mentioned trouble -- in addition, it aims at offering the record medium which is recording the data-control equipment which protects the digital work currently recorded on record media distributed via a network, without adding said control information, such as contents, CD, and CD-ROM, like said negotiation contents, the data-control approach, and data management.

[0007]

[Means for Solving the Problem] In order to attain the above-mentioned object, this invention is data

control equipment which matches and manages the digital work and access information which are circulating. An access information storage means by which the access information which includes at least the playback access information which shows whether playback of a digital work is permitted for every class of digital work is memorized beforehand, A work storage means and a work acquisition means to acquire the digital work with which it is circulating and access information is not added from the exterior, A formal distinction means to distinguish the class of acquired digital work, and the access information read-out means which reads the access information corresponding to the class of acquired digital work from said access information storage means, It is characterized by having the work write-in means which writes said acquired digital work in said work storage means, and the access information write-in means which matches with said digital work written in said work storage means, and writes said read access information in said work storage means.

[0008] Here, said work write-in means may be constituted so that said access information further read to said digital work written in said work storage means may be added. Here, said access information may show further whether said record access information permits check-out including record access information, and said check-out may be constituted so that it may be reproducing to the exterior a digital work and the playback access information it corresponding.

[0009] Here, including the number of check-out upper limits, said record access information may constitute said number of check-out upper limits so that the upper limit of the count to check out may be shown. Here, further, including migration access information, said access information may constitute said migration access information so that it may be shown whether it permits moving a digital work and corresponding access information to the exterior.

[0010] here, said data control equipment may be constituted so that a playback means to reproduce said digital work which carried out reading appearance of said digital work and the corresponding access information, and carried out reading appearance further based on the access information which carried out reading appearance from said work storage means may be included.

[0011]

[Embodiment of the Invention] 1 Explain the data control equipment 100 as a gestalt of one operation concerning gestalt 1 this invention of operation. Data control equipment 100 is connected to the networks 20, such as the Internet and a cable TV, through the communication line 10, as shown in drawing 1 . Moreover, Web server 30 which supplies the music information containing the contents about music is connected to the network 20. From Web server 30, data control equipment 100 acquires music information, and memorizes the acquired music information inside. Moreover, the music information which contains the contents about music from CD300 is read, and the read music information is memorized inside. Moreover, data control equipment 100 reproduces said memorized music information, and outputs it by the loudspeaker 154.

[0012] Thus, a user can enjoy music.

1.1 The configuration data control equipment 100 of data control equipment 100 consists of the control approach storage table 101 classified by data format, the access managed table 102 classified by data format, the data-format distinction section 103, the data registration section 104, a data control table 105, and the data storage section 106, as shown in drawing 2 .

[0013] As shown in drawing 3 , data control equipment 100 consisted of a microprocessor 151, RAM (Random Access Memory)152, a display 153, a loudspeaker 154, a hard disk 156, a keyboard 157, the communications department 158, and the read-out section 159, and, specifically, the communications department 158 is connecting it to a communication line 10. The computer program is memorized by the hard disk 156 and the data-format distinction section 103 and the data registration section 104 attain the function to it by performing said computer program memorized by the hard disk 156 by the microprocessor 151. Specifically, the control approach storage table 101 classified by data format, the access managed table 102 classified by data format, the data control table 105, and the data storage section 106 consist of hard disks 156.

(Data-format distinction section 103) The data-format distinction section 103 includes the communications department 158 connected with external Web server 30 via the networks 20, such as the Internet and a cable TV, and contains the read-out section 159 of the record medium of CD and

DVD.

[0014] The data-format distinction section 103 takes out negotiation contents from external Web server 30 based on directions of a user. Said negotiation contents consist of a file A and a file B. File A contains encryption contents, such as an enciphered music content. File B contains the access information which shows authorization and the disapproval of playback of File A, sound recording, and migration, the cipher system which enciphered said encryption contents, and the decryption key of said encryption contents. The data-format distinction section 103 outputs the taken-out negotiation contents, the file name of File A, and the distinction information which shows that they are negotiation contents to the data registration section 104.

[0015] the data-format distinction section 103 -- moreover, based on directions of a user, reading appearance of the contents which are not enciphered from CD or DVD with which it was equipped is carried out, and the contents which carried out reading appearance and which are not enciphered, and the distinction information which shows CD or DVD are outputted to the data registration section 104. Here, the information which shows reproductive authorization and disapproval is also called playback access information, and shows whether playback of the contents which have the playback access information concerned is permitted.

[0016] Moreover, the information which shows authorization and the disapproval of sound recording is also called sound recording access information, and shows authorization and the disapproval of check-out. Moreover, sound recording access information contains the number of check-out upper limits which shows the count to which check-out is permitted. Here, check-out reproduces the playback access which reproduces contents and contents to other equipments from the equipment which has contents, and means reducing the number of check-out upper limits by one in the equipment which has said contents. Moreover, check-in returns the access which reproduces contents to the original equipment from other equipments, and means increasing the number of check-out upper limits one in the original equipment. At this time, it becomes impossible in equipment besides the above to use the reproduced contents.

[0017] Moreover, the information which shows authorization and the disapproval of migration is also called migration access information, and shows authorization and the disapproval of migration. Here, from the equipment with which migration has contents, contents and all access information are reproduced to other equipments, and it says that contents are permanently made impossible [an activity] in the original equipment to them.

(The control approach storage table 101 classified by data format) The control approach storage table 101 classified by data format has memorized two or more groups of data format 201, the data storage approach 202, a cipher system 203, the cryptographic key creation approach 204, and the access management method 205 and the access existence information 206, as shown in drawing 4.

[0018] Data format 201 shows distinction of whether contents are the contents taken out via the network, or to be the contents read from record media, such as CD and DVD. "Negotiation contents" shows the contents taken out via the network, and "CD" and "DVD" show the contents read from CD and DVD, respectively.

[0019] The data storage approach 202 is a script which shows the approach of processing for contents. When data format 201 is "CD", the data storage approach 202 consists of a script shown below. Also about the case where data format 201 is "DVD", the data storage approach 202 is the same as that of the script shown below.

(Step 1) A cryptographic key is created using the cryptographic key creation approach 204 corresponding to the data format 201 which is "CD."

(Step 2) With the cipher system 203 corresponding to the data format 201 which is "CD", the contents read from CD are enciphered using said created cryptographic key, and encryption contents are generated.

(Step 3) It writes in the data storage section 106 by considering the generated encryption contents as File A.

(Step 4) According to the script currently recorded on the access management method 205, the access information 222 corresponding to the data format 221 which is "CD" is read from the access

managed table 102 classified by data format.

(Step 5) According to the script currently recorded on the access management method 205, data ID 251, the encryption information 252, the access information 253, and a file name 254 are written in the data control table 105. Moreover, it writes in the data storage section 106 by considering the encryption information 252 and access information 253 as File B. Here, data ID 251 are the identifier of the proper generated for every contents of CD. The encryption information 252 consists of a cipher system 261 and a cryptographic key 262. A cipher system 261 is a cipher system determined in step 2. A cryptographic key 262 is a cryptographic key created in step 1. The file identification child of a file name 254 is an identifier of the proper generated for said every contents. The access information 253 is the access information 222 read from the access managed table 102 classified by data format.

[0020] When data format 201 is "negotiation contents", the data storage approach 202 consists of a script shown below.

(Step 1) The negotiation contents taken out via the network are written in the data storage section 106.

(Step 2) Data ID 251, the encryption information 252, the access information 253, and a file name 254 are written in the data control table 105. Here, data ID 251 are the file name of the file A taken out via the network. The encryption information 252 consists of a cipher system 261 and a cryptographic key 262. A cipher system 261 is a cipher system contained in the file B taken out via the network. A cryptographic key 262 is a decryption key contained in the file B taken out via the network. The access information 253 is the access information taken out via the network. A file name 254 is a file name of the file A taken out via the network.

[0021] A cipher system 203 shows the cipher system at the time of enciphering the contents read from "CD" or "DVD", when data format 201 is "CD" or "DVD." According to the example shown in this drawing, a cipher system is RSA when data format 201 is "CD" or "DVD." When data format 201 is "negotiation contents", the cipher system 203 is not memorized.

[0022] The cryptographic key creation approach 204 shows how to create the cryptographic key used with a cipher system 203. According to the example shown in this drawing, when data format 201 is "CD" or "DVD", the cryptographic key creation approach 204 is random-number generation.

Furthermore, when data format 201 is "DVD", the die length of the music currently recorded on the head of DVD is considered as the seed in the case of random-number generation. When data format 201 is "negotiation contents", the cryptographic key creation approach 204 is not memorized.

[0023] The access management method 205 is a script about access information. When data format 201 is "CD", the access management method 205 consists of a script shown below. Also about the case where data format 201 is "DVD", the access management method 205 is the same as that of the script shown below.

(Step 1) The access information 222 on the access managed table 102 classified by data format is read, and it writes in the data control table 105.

[0024] When data format 201 is "negotiation contents", the access management method 205 is not memorized. The access existence information 206 shows whether access information is added. The access existence information 206 shows that access information is not added in the case of "0", and, in the case of "1", it is shown that access information is added. Since access information is added when the access existence information 206 is "0" and data format 201 is "negotiation contents", since access information is not added in the example of the control approach storage table 101 classified by data format shown in drawing 4 when data format 201 is "CD" or "DVD", the access existence information 206 is "1."

(Access managed table 102 classified by data format) The access managed table 102 classified by data format has remembered two or more groups with the access information 222 to be data format 221, as shown in drawing 5.

[0025] Data format 221 consists of "CD" or "DVD" in which it is shown that they are the contents by which reading appearance was carried out from record media, such as CD and DVD. Data format 221 does not contain "negotiation contents." The access information 222 consists of playback access

231; sound recording access 232, and migration access 233. It is shown whether the playback access 231, the sound recording access 232, and the migration access 233 permit playback of contents, sound recording, and migration to a user, respectively. "It is possible" shows authorization of playback of contents, sound recording, and migration, and "it is impossible" shows disapproval for playback of contents, sound recording, and migration.

(Data control table 105) The data control table 105 has memorized two or more groups of data ID 251, the encryption information 252, the access information 253, and a file name 254, as shown in drawing 6.

[0026] Each class supports each contents and one to one which are memorized by the data storage section 106. Data ID 251 are an identifier which identifies each contents. The encryption information 252 consists of a cipher system 261 and a cryptographic key 262. A cipher system 261 is a cipher system used when the contents identified with data ID 251 were enciphered. A cryptographic key 262 is a cryptographic key used when the contents identified with data ID 251 were enciphered.

[0027] The access information 253 consists of playback access 271, sound recording access 272, and migration access 273. It is shown whether the playback access 271, the sound recording access 272, and the migration access 273 permit playback of the contents identified with data ID 251 to a user, respectively, sound recording, and migration. "It is possible" shows authorization of playback of contents, sound recording, and migration, and "it is impossible" shows disapproval for playback of contents, sound recording, and migration.

[0028] A file name 254 is a file stored in the data storage section 106, and is a file name of the file containing the contents identified with data ID 251. A file identification child, SEPARATE ".", and file classification "dat" are combined, and a file name 254 is constituted. The file identification child of a file name 254 has the same identifier as data ID 251.

[0029] In this drawing, a group 281 is an example in case data format is "CD", and a group 282 is an example in case data format is a "music content."

(Data registration section 104) The data registration section 104 receives negotiation contents, the file name of File A, and the distinction information that shows that they are negotiation contents from the data-format distinction section 103. Moreover, the data registration section 104 receives the contents which are not enciphered and the distinction information which shows CD or DVD.

[0030] The data registration section 104 will perform the script currently recorded on ejection and the taken-out data storage approach 202 from the control approach storage table 101 classified by data format in the data storage approach 202 corresponding to the data format 201 which is "negotiation contents", if the distinction information which shows that they are negotiation contents is received from the data-format distinction section 103.

[0031] The data registration section 104 will perform the script currently recorded on ejection and the taken-out data storage approach 202 from the control approach storage table 101 classified by data format in the data storage approach 202 corresponding to the data format 201 which is "CD", if the distinction information which shows that it is "CD" is received from the data-format distinction section 103. It is also the same as when the data registration section 104 receives the distinction information which shows that it is "DVD."

(Data storage section 106) The data storage section 106 is the same file format as the negotiation contents which consist of a file A and a file B, and has memorized contents.

1.2 Explain actuation of the data control equipment 100 of data control equipment 100 of operation using the flow chart shown in drawing 7.

[0032] The data-format distinction section 103 from the exterior negotiation contents Ejection and the taken-out negotiation contents, The file name of File A and the distinction information which shows that they are negotiation contents are outputted to the data registration section 104. Or the contents which the data-format distinction section 103 read the contents which are not enciphered from CD or DVD with which it was equipped, and were read and which are not enciphered, The distinction information which shows CD or DVD is outputted to the data registration section 104. The data registration section 104 From the data-format distinction section 103, negotiation contents, the file name of File A, and the distinction information that shows that they are negotiation contents

Reception, Or the data registration section 104 receives the contents which are not enciphered and the distinction information which shows CD or DVD (step S101).

[0033] If the distinction information which shows that they are negotiation contents is received from the data-format distinction section 103 (steps S103-S104), the data registration section 104 From the control approach storage table 101 classified by data format, the data storage approach 202 corresponding to the data format 201 which is "negotiation contents" Ejection, By performing the script currently recorded on the taken-out data storage approach 202 The file A containing the encryption contents taken out via the network is written in the data storage section 106 (step S105). Data ID 251, the encryption information 252, the access information 253, and a file name 254 are written in the data control table 105 (step S106).

[0034] If the distinction information which shows that it is "CD" is received from the data-format distinction section 103 (step S103), the data registration section 104 By performing the script currently recorded on ejection and the taken-out data storage approach 202 from the control approach storage table 101 classified by data format in the data storage approach 202 corresponding to the data format 201 which is "CD" Using the cryptographic key creation approach 204 corresponding to the data format 201 which is "CD", create a cryptographic key (step S111) and with the cipher system 203 corresponding to the data format 201 which is "CD" Encipher the contents read from CD using said created cryptographic key, and encryption contents are generated (step S112). The generated encryption contents are written in the data storage section 106 (step S113). According to the script currently recorded on the access management method 205, the access information 222 corresponding to the data format 221 which is "CD" is read from the access managed table 102 classified by data format (step S114). According to the script currently recorded on the access management method 205, data ID 251, the encryption information 252, the access information 253, and a file name 254 are written in the data control table 105. The encryption information 252 and the access information 253 are written in the data storage section 106 (step S115).

1.3 a conclusion -- in case playback, migration, a copy, etc. are processed like "negotiation contents" in this way according to the gestalt 1 of operation by enciphering contents and adding access information with the cipher system decided beforehand even case [like the contents which carried out reading appearance from CD with which the contents which are not enciphered are recorded], a work can be protected by adding a fixed limit.

[0035] Moreover, even when a new data format is developed and added, it can respond to a new data format easily by adding and writing a new data format, the data storage approach and a cipher system, the cryptographic key creation approach, an access management method, and access information in the control approach storage table 101 classified by data format, and the access managed table 102 classified by data format.

2 Explain another data control equipment 800 as a gestalt of one operation concerning gestalt 2 this invention of operation.

[0036] Data control equipment 800 is connected to the networks 20, such as the Internet and a cable TV, through the communication line 10, as shown in drawing 8 . The accounting server 40 which supplies the access [countervalue / in the case of using Web server 30 which supplies the music information containing the contents about music, and contents] information according to reception and a countervalue is connected to the network 20. Data control equipment 800 memorizes the music information which acquired music information and was acquired inside from Web server 30, pays the countervalue in the case of using contents to the accounting server 40, and receives the access information according to a countervalue. Moreover, the music information containing the contents about music is read from CD300, and read-out music information is memorized inside. Moreover, based on said received access information, data control equipment 800 reproduces said memorized music information, and outputs it by the loudspeaker 154.

[0037] Moreover, data control equipment 800 writes said memorized music information in a record medium 811 based on said received access information. The pocket player 401 is equipped by the user, and the record medium 811 with which music information was written in reproduces the music information written in the record medium 811, and outputs the pocket player 401 to headphone 402.

Here, a record medium 811 is a semi-conductor memory card as an example.

[0038] Thus, a user can enjoy music.

2.1 The configuration data control equipment 800 of data control equipment 800 consists of the data-format distinction section 801, the data format section 802, the access managed table 803 classified by data format, the encryption section 804, the data storage section 805, two or more data-format data control table 807, the accounting section 808, the data control section 809, the format conversion section 810, the input section 812, and a control approach storage table 813 classified by data format, as shown in drawing 9.

[0039] Like data control equipment 100, data control equipment 800 consisted of a microprocessor, RAM, a display, a loudspeaker, the record-medium I/O section, a hard disk, a keyboard, the communications department, and the read-out section, and, specifically, the communications department is connecting it to a communication line. The computer program is memorized by the hard disk and the data-format distinction section 801, the encryption section 804, the accounting section 808, the data control section 809, and the format conversion section 810 attain the function to it by performing said computer program memorized by said hard disk by said microprocessor. Moreover, the access managed table 803 classified by data format, the data storage section 805, and the two or more data-format data control control approach storage table 807 and 813 classified by data format consist of said hard disks for the data-format distinction section 801 and the accounting section 808 including said communications department.

(Input section 812) The input section 812 consists of said keyboards etc., and, specifically, receives from a user the input of the contents identifier which discriminates contents from the supplying agency information which shows the supply origin of contents, and the usage of contents.

[0040] Here, supplying agency information shows whether it is the exterior connected via a network, or they are record media, such as CD and DVD. The usage of contents is playback of contents, record, or migration. The input section 812 outputs the supplying agency information that the input was received, and the contents identifier which identifies contents to the data-format distinction section 801. Moreover, the input section 812 outputs the supplying agency information that the input was received, the contents identifier which identifies contents, and the usage of contents to the data control section 809.

(Data-format distinction section 801) The data-format distinction section 801 receives supplying agency information and the contents identifier which identifies contents from the input section 812.

[0041] The data-format distinction section 801 is connected with the exterior via networks, such as the Internet and a cable TV, like the data-format distinction section 103 of data control equipment 100. The data-format distinction section 801 will take out the negotiation contents identified by said received contents identifier from the exterior, if the supplying agency information which shows the exterior connected via a network is received from the input section 812. Said negotiation contents consist of a file A and a file B. File A contains encryption contents, such as an enciphered music content. File B contains the access information which shows authorization and the disapproval of playback of File A, sound recording, and migration, the cipher system which enciphered said encryption contents, and the decryption key of said encryption contents. The data-format distinction section 801 outputs the taken-out negotiation contents, the file name of File A, and the distinction information which shows that they are negotiation contents to the data format section 802.

[0042] The data-format distinction section 801 is equipped with the read-out section of the record medium of CD and DVD again. If the supplying agency information which shows record media, such as CD and DVD, is received from the input section 812, from CD with which the aforementioned read-out section was equipped, or DVD, the data-format distinction section 801 will read the contents which are identified by said contents identifier and which are not enciphered, and will output the read contents which are not enciphered and the distinction information which shows CD or DVD to the data format section 802.

(Access managed table 803 classified by data format) Since the access managed table 803 classified by data format is the same as the access managed table 102 classified by data format of data control equipment 100, explanation is omitted.

(The control approach storage table 813 classified by data format) The control approach storage table 813 classified by data format has memorized two or more groups of data format 951, a cipher system 952, and the cryptographic key creation approach 953, as shown in drawing 10.

[0043] Distinction of whether data format 951 is the contents to which reading appearance of the contents was carried out from which record media, such as CD or DVD, is shown. "CD" and "DVD" show the contents by which reading appearance was carried out from CD and DVD, respectively. A cipher system 952 shows the cipher system at the time of enciphering the contents read from "CD" or "DVD", when data format 951 is "CD" or "DVD." According to the example shown in this drawing, when data format 951 is "CD" or "DVD", both cipher systems are RSA.

[0044] The cryptographic key creation approach 953 shows how to create the cryptographic key used with the cipher system shown by the cipher system 952. According to the example shown in this drawing, when data format 951 is "CD" or "DVD", both the cryptographic key creation approaches 953 are random-number generation. Furthermore, when data format 951 is "DVD", the die length of the music currently recorded on the head of DVD is considered as the seed in the case of random-number generation.

(Data format section 802) The data format section 802 receives negotiation contents, the file name of File A, and the distinction information that shows that they are negotiation contents from the data-format distinction section 801. Moreover, the data format section 802 receives the contents which are not enciphered and the distinction information which shows CD or DVD.

[0045] A random number will be generated and the data format section 802 will generate the character string of 6 figures which identifies contents based on the generated random number, if the distinction information which shows CD or DVD is received from the data-format distinction section 801. The data format section 802 reads the access information 222 corresponding to the data format 221 which is in agreement with said received distinction information from the access managed table 303 classified by data format.

[0046] Moreover, from the control approach storage table 813 classified by data format, the data format section 802 reads the cipher system 952 and the cryptographic key creation approach 953 corresponding to the data format 951 which is in agreement with said received distinction information, and generates a cryptographic key using the read cryptographic key creation approach 953. Next, the data format section 802 uses said generated character string of 6 figures as data ID 911. Make said read cipher system 952 into a cipher system 921, and said generated cryptographic key is made into a cryptographic key 922. said access information 222 which carried out reading appearance is made into the access information 913, said generated character string of 6 figures is made into a file identification child, said file identification child, SEPARETA ".", and file classification "dat" are combined, a file name 914 is generated, and data format 915 is set to "CD." Data ID 911, the encryption information 912, the access information 913, a file name 914, and data format 915 are written in two or more data-format data control table 807. Here, the encryption information 912 consists of a cipher system 921 and a cryptographic key 922.

[0047] Furthermore, the data format section 802 outputs the received contents which are not enciphered, said read cipher system 952, said generated cryptographic key, and a file name 914 to the encryption section 804. If the distinction information which shows that they are negotiation contents is received from the data-format distinction section 801, the data format section 802 The file identification child who constitutes the file name of said received file A is used as data ID 911. The cipher system contained in said received negotiation contents is made into a cipher system 921. The decryption key contained in said received negotiation contents is made into a cryptographic key 922, and access information included in said received negotiation contents is made into the access information 913, make the file name of said received file A into a file name 914, and let data format 915 be "negotiation contents." Data ID 911, the encryption information 912, the access information 913, a file name 914, and data format 915 are written in two or more data-format data control table 807. Here, the encryption information 912 consists of a cipher system 921 and a cryptographic key 922. Next, the data format section 802 writes said received negotiation contents in the data storage section 805 by making the file name of said received file A into a file name.

(Encryption section 804) The encryption section 804 receives the contents which are not enciphered, a cipher system 952, said cryptographic key, and a file name 914 from the data format section 802. [0048] If the contents which are not enciphered, a cipher system 952, said cryptographic key, and a file name 914 are received, the encryption section 804 will encipher the contents which are not enciphered with a cipher system 952 using said cryptographic key, and will write the encryption contents which generated and generated encryption contents in the data storage section 805 by making a file name 914 into a file name.

(Data storage section 805) The data storage section 805 has memorized the negotiation contents which the encryption contents generated by the encryption section 804 and the data format section 802 received.

(Two or more data-format data control table 807) Two or more data-format data control table 807 remembers groups with data format 915 to be data ID 911, the encryption information 912, the access information 913, and a file name 914, as shown in drawing 11.

[0049] Each class supports each contents and one to one which are memorized by the data storage section 805. The encryption information 912 consists of a cipher system 921 and a cryptographic key 922, and the access information 913 consists of playback access 923, sound recording access 924, and migration access 925.

[0050] Since it is the same as the data ID 251 of the data control table of data control equipment 100, a cipher system 261, a cryptographic key 262, the playback access 271, the sound recording access 272, the migration access 273, and a file name 254, data ID 911, a cipher system 921, a cryptographic key 922, the playback access 923, the sound recording access 924, the migration access 925, and a file name 914 omit explanation, respectively.

[0051] Data format 915 shows distinction of whether contents are the contents taken out via the network, or to be the contents read from record media, such as CD and DVD. "Negotiation contents" shows the contents taken out via the network, and "CD" and "DVD" show the contents read from CD and DVD, respectively.

[0052] In this drawing, a group 901 is an example in case data format is "CD", and a group 902 is an example in case data format is "negotiation contents."

(Accounting section 808) The accounting section 808 is connected with the exterior via networks, such as the Internet and a cable TV.

[0053] The accounting section 808 receives the contents identifier which identifies contents, and the usage of contents from the data control section 809. The accounting section 808 performs accounting which pays the countervalue in the case of using the contents identified by said received contents identifier by the usage of said received contents to the exterior, and receives the access information according to said usage from said exterior. The playback access of contents, sound recording access, and migration access are contained in access information.

[0054] The accounting section 808 transposes the access information 913 corresponding to the data ID 911 which have the same content as said received contents identifier in two or more data-format data control table 807 to the access information received from said exterior.

(Data control section 809) The data control section 809 receives supplying agency information, the contents identifier which identifies contents, and the usage of contents from the input section 812.

[0055] The data control section 809 compares the access information 913 corresponding to the data ID 911 which have the same content as said received contents identifier in two or more data-format data control table 807 with said received usage, and utilization by said received usage judges how **** is. The data control section 809 will judge with it being available, if the playback access 923 is "possible" when said received usage is playback, and if the playback access 923 is "impossible", specifically, it will judge with utilization being impossible. If the sound recording access 924 is "possible" when said received usage is sound recording, it will judge with it being available, and if the sound recording access 924 is "impossible", it will judge with utilization being impossible. If the migration access 925 is "possible" when said received usage is migration, it will judge with it being available, and if the migration access 925 is "impossible", it will judge with utilization being impossible.

[0056] When that it can use judges, the data control section 809 directs to write in the contents which changed the contents which will be identified by said received contents identifier to the format conversion section 810 based on the sound recording access 924 if sound recording is possible into the format to the record medium equipped by the format conversion section 810, and were changed into said record medium, and outputs said received contents identifier to the format conversion section 810.

[0057] The data control section 809 ends processing, when that it cannot use judges and said supply [which was received] former information shows record media, such as CD and DVD. The data control section 809 outputs said received contents identifier and the usage of contents to the accounting section 808, when that it cannot use judges and it is shown that it is the exterior where said supply [which was received] former information is connected via a network. When the judgment of utilization is again performed after termination of the accounting by the accounting section 808 and that it can use judges, as mentioned above, the data control section 809 directs to write in the contents which changed into the format to a record medium the contents identified by said contents identifier to the format conversion section 810, and were changed into said record medium, and outputs said received contents identifier to the format conversion section 810.

(Format conversion section 810) The format conversion section 810 is equipped with the write-in section to a record medium 811.

[0058] The format conversion section 810 receives directions of format conversion, and a contents identifier from the data control section 809. If directions of format conversion are received from the data control section 809, the format conversion section 810 reads the contents identified by said received contents identifier from the data storage section 805, will be changed into the format to the record medium 811 equipped with the read contents by the format conversion section 810, and will write the changed contents in a record medium 811.

(Record medium 811) A record medium 811 is a record medium which consists of semiconductor memory, a DVD-RAM, etc., and the format conversion section 810 is equipped with it. A record medium 811 records the changed contents by the format conversion section 810. 2.2 Explain the actuation at the time of the data control equipment 800 of data control equipment 800 of operation taking out contents from record media, such as the exterior, or CD, DVD, using the flow chart shown in drawing 12 .

[0059] The input section 812 receives the input of supplying agency information, the contents identifier which identifies contents, and the usage of contents, and the data-format distinction section 801 reads the contents which are discriminated from ejection, CD, or DVD by said contents identifier in the negotiation contents discriminated from the exterior by said received contents identifier and which are not enciphered from a user (step S1001).

[0060] When the distinction information which shows CD or DVD is received from the data-format distinction section 801 (step S1002), the data format section 802 the data format section 802 The contents which read access information from the access managed table 803 classified by data format, read the cipher system and the cryptographic key creation approach from the control approach storage table 813 classified by data format, generated the cryptographic key, and were received and which are not enciphered, Said read cipher system 952, said generated cryptographic key, and a file name 914 are outputted to the encryption section 804. The encryption section 804 The contents which are not enciphered are enciphered with a cipher system 952 using said cryptographic key. Encryption contents are generated and the generated encryption contents are written in the data storage section 805 using a file name 914 (step S1006). The data format section 802 Data ID 911, the encryption information 912, the access information 913, a file name 914, and data format 915 are written in two or more data-format data control table 807 (step S1007).

[0061] If the distinction information which shows that they are negotiation contents is received from the data-format distinction section 801 (steps S1002-S1003), the data format section 802 The data format section 802 on two or more data-format data control table 807 Data ID 911 The encryption information 912, the access information 913, a file name 914, and data format 915 are written in (step S1004). Next, the data format section 802 Said received negotiation contents are written in the

data storage section 805 using the file name of said received file A (step S1005).

[0062] Next, the actuation at the time of data control equipment 800 writing contents in a record medium 811 is explained using the flow chart shown in drawing 13. The contents identifier to which the data control section 809 discriminates supplying agency information and contents from the input section 812, The usage of contents reception (step S1101) and the data control section 809 The access information 913 corresponding to the data ID 911 which have the same content as said received contents identifier in two or more data-format data control table 807, When said received usage is compared, utilization by said received usage judges how **** is and that it can use judges, if sound recording is possible, based on (step S1102) and the sound recording access 924 The contents identified by said received contents identifier to the format conversion section 810 It changes into the format to the record medium with which the format conversion section 810 is equipped. It directs to write in the contents changed into said record medium, and said received contents identifier is outputted to the format conversion section 810. The format conversion section 810 The contents identified by said received contents identifier are read from the data storage section 805. It changes into the format to the record medium 811 equipped with the read contents by the format conversion section 810, and the changed contents are written in a record medium 811 (step S1103).

[0063] The data control section 809 ends (step S1104) and processing, when that it cannot use judges and it is shown that (step S1102) and said supply [which was received] former information are record media, such as CD and DVD. When that it cannot use judges, the data control section 809 (Step S1102), When it is shown that it is the exterior where said supply [which was received] former information is connected via a network, (step S1104) and said received contents identifier, The usage of contents is outputted to the accounting section 808. The accounting section 808 The accounting which pays the countervalue in the case of using the contents identified by said received contents identifier by the usage of said received contents Carry out to the exterior and the access information according to said usage From said outside to reception The access information 913 corresponding to the data ID 911 which have the same content as said received contents identifier in two or more data-format data control table 807 It transposes to the access information received from said exterior (step S1105), and control is moved to step S1102, and again, when carrying out a utilization judging and judging with it being available, the contents to a record medium 811 are written in.

2.3 If equipped with the record medium 811 with which contents are recorded, the pocket player 401 pocket player 401 will reproduce the contents which read contents and were read from a record medium 811, and will output them to headphone 402.

2.4 In Collecting, and Taking Out Contents via Network in this Way according to the Gestalt 2 of Operation In writing the negotiation contents which consist of contents, access information, and encryption information in the data storage section as it is and reading contents from record media, such as CD Since only encryption contents are written in the data storage section and data format, access information, and encryption information are written in two or more data-format data control table Access information and encryption information can be further added to the contents read from record media, such as CD, it is not necessary to change into the same file format as negotiation contents, and the load of equipment can be mitigated.

3 In the other gestalten of operation of the modification (1) above, data format, such as "DVD-Video", "DVD-Audio", and "being the negotiation contents of the data format of a class two or more", may be added instead of CD.

[0064] Moreover, although [a record medium 811] it is a semi-conductor memory card, they may be other record media, such as MD.

(2) In the gestalt of the above-mentioned operation, although [equipment] the contents to which it is enciphered and access information is added are acquired via networks, such as the Internet, though data control equipment acquires the contents to which it is not enciphered and access information is not added via a network, it is good. It sets on the control approach storage table 101 classified by data format to the contents of such a class. It has the same data storage approach as "CD" or "DVD",

a cipher system, the cryptographic key creation approach, an access management method, and access existence information. The data registration section 104 Like "CD" or "DVD", an encryption key is created, contents are enciphered, encryption contents are written in the data storage section 106, and Data ID, encryption information, access information, and a file name are written in the data control table 105.

(3) You may make it be a degree in the gestalt of the above-mentioned operation. The format conversion section 810 writes the access information which consists of the playback access to which "it is possible" was set, sound recording access to which "it is impossible" was set, and migration access to which "it is impossible" was set further in a record medium 811. If equipped with the record medium 811 with which the access information which consists of contents, and the playback access to which "it is possible" was set, the sound recording access to which "it is impossible" was set and the migration access to which "it is impossible" was set is recorded, the pocket player 401 Access information is read from a record medium 811, playback access judges whether it is "possible", and if it is "possible", the contents currently recorded on the record medium 811 will be reproduced. If playback access is "impossible", playback of the contents currently recorded on the record medium 811 will not be performed.

(4) In the gestalt of the above-mentioned operation, the playback access and sound recording access which constitute access information, and migration access Although it is shown whether playback of contents, sound recording, and migration are permitted to a user, respectively, "it is possible" shows authorization of playback of contents, sound recording, and migration and "it is impossible" shows disapproval for playback of contents, sound recording, and migration It is good though playback access, sound recording access, and migration access are counts which permit playback of contents, sound recording, and migration to a user, respectively. It is permitted that a user performs playback of contents, sound recording, and migration within the limits of the aforementioned count. If playback of contents, sound recording, and migration are performed once, the value of 1 will be subtracted from the count of each.

[0065] Moreover, though said access information is length which permits playback, sound recording, and migration, it is good. It is permitted that a user performs playback of contents, sound recording, and migration within the permitted length.

(5) In the gestalt of the above-mentioned operation, although music information is acquired, memorized, reproduced, moved and recorded on videotape from record media, such as CD, through a network, don't restrict to music information. It is good though it is the multimedia information (for example, HTML document) containing static-image information, dynamic-image information, the film information that consists of voice and a dynamic image, a computer program, text, control information, text, a static image, a dynamic image, voice, etc.

(6) Though this invention is an approach shown above, it is good. Moreover, though it is the computer program which realizes these approaches by computer, it is good, and it is good though it is the digital signal which consists of said computer program.

[0066] Moreover, this invention is good also as what recorded said computer program or said digital signal on the record medium in which computer reading is possible, for example, a floppy (trademark) disk, a hard disk, CD-ROM, MO and DVD, DVD-ROM, DVD-RAM, semiconductor memory, etc. Moreover, it is good though it is said computer program currently recorded on these record media, or said digital signal.

[0067] Moreover, this invention is good also as what is transmitted via the network where said computer program or said digital signal is used into a telecommunication circuit, wireless, or a wire communication circuit, and it uses the Internet representation. moreover, the thing for which said program is recorded on said record medium, and is transported -- or by transporting said program via a network etc., though carried out according to other independent computer systems, it is good.

(7) It is good though the gestalt and the above-mentioned modification of the above-mentioned implementation are combined, respectively.

[0068]

[Effect of the Invention] As explained above, this invention is data control equipment which matches

and manages the digital work and access information which are circulating. An access information storage means by which the access information which includes at least the playback access information which shows whether playback of a digital work is permitted for every class of digital work is memorized beforehand, A work storage means and a work acquisition means to acquire the digital work with which it is circulating and access information is not added from the exterior, A formal distinction means to distinguish the class of acquired digital work, and the access information read-out means which reads the access information corresponding to the class of acquired digital work from said access information storage means, It has the work write-in means which writes said acquired digital work in said work storage means, and the access information write-in means which matches with said digital work written in said work storage means, and writes said read access information in said work storage means.

[0069] Even when acquiring the contents to which access information is not added, since [according to this configuration] the access information beforehand decided corresponding to the acquired contents is memorized, in case access information is reproduced at least like the "negotiation contents" added beforehand, it becomes possible to add a fixed limit and it is effective in the ability to be able to protect a work.

[0070] Here, said work write-in means adds said access information further read to said digital work written in said work storage means. Since it memorizes by the file format as the "negotiation contents" added beforehand with the access information same by adding access information to the contents to which access information is not added further according to this configuration, also in the equipment which can manage the negotiation contents to which access information is added beforehand, it is effective in the ability to treat these contents similarly.

[0071] Said access information shows further whether said record access information permits check-out here including record access information, and said check-out is reproducing to the exterior a digital work and the playback access information it corresponding. Since access information includes playback access information and record access information, in case it checks out in addition to playback, it becomes possible [adding a fixed limit] and is effective in the ability to protect a work.

[0072] Here, said record access information shows the upper limit of the count which checks out said number of check-out upper limits including the number of check-out upper limits. Since record access information contains the number of check-out upper limits, in case it checks out, it is effective in the ability to restrict check-out within said number of check-out upper limits.

[0073] Here, said access information shows further whether it permits that said migration access information moves a digital work and corresponding access information to the exterior including migration access information. Since access information includes playback access information and migration access information, in case it moves in addition to playback, it becomes possible [adding a fixed limit] and is effective in the ability to protect a work.

[0074] Here, said data control equipment includes a playback means to reproduce said digital work which read said digital work and corresponding access information, and read them from said work storage means further based on the read access information. According to this configuration, it is effective in being reproducible, protecting a digital work.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the technique which protects especially a digital work about the system which circulates a digital work.

[Translation done.]

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PRIOR ART

[Description of the Prior Art] The approach of distributing record media with which the digital work was recorded, such as CD and CD-ROM, in case ordinary users are provided with the digital work which informational digitization progressed in recent years and was expressed using multimedia, and the approach of making go via a network and distributing a digital work are used well.

[0003] In the case of the former, ordinary users can equip a personal computer with distributed CD, and can play and enjoy the digital work currently recorded on CD, for example, music. In the case of the latter, a digital work is downloaded and used for each personal computer using the communication facility of a personal computer. The music distribution system using a contents control system as the example is indicated by "music distribution MATTANASHI" (Nikkei electronics No. 738 PP 87-111, Nikkei Business Publications, March 8, 1999 issuance). The file B which consists of control information, a decryption key of File A, etc. in which the playback of File A and File A which consists of an enciphered music content in this contents control system, authorization, disapproval of a copy, etc. are shown is distributed via a network, and it judges [whether it is possible in playback and the copy of File A, and] using the control information included in File B at the time of music playback.

[0004] According to such a music distribution system, a work can be protected from an unjust activity by adding a fixed limit to playback and the copy of contents using the control information which shows playback, authorization, disapproval of a copy, etc.

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, this invention is data control equipment which matches and manages the digital work and access information which are circulating, and it is circulating for every class of digital work with an access information storage means by which the access information which includes at least the playback access information which shows whether playback of a digital work is permitted is memorized beforehand, and the work storage means. A work acquisition means to acquire the digital work with which access information is not added from the exterior, A formal distinction means to distinguish the class of acquired digital work, and the access information read-out means which reads the access information corresponding to the class of acquired digital work from said access information storage means, It has the work write-in means which writes said acquired digital work in said work storage means, and the access information write-in means which matches with said digital work written in said work storage means, and writes said read access information in said work storage means.

[0069] Even when acquiring the contents to which access information is not added, since [according to this configuration] the access information beforehand decided corresponding to the acquired contents is memorized, in case access information is reproduced at least like the "negotiation contents" added beforehand, it becomes possible to add a fixed limit and it is effective in the ability to be able to protect a work.

[0070] Here, said work write-in means adds said access information further read to said digital work written in said work storage means. Since it memorizes by the file format as the "negotiation contents" added beforehand with the access information same by adding access information to the contents to which access information is not added further according to this configuration, also in the equipment which can manage the negotiation contents to which access information is added beforehand, it is effective in the ability to treat these contents similarly.

[0071] Said access information shows further whether said record access information permits check-out here including record access information, and said check-out is reproducing to the exterior a digital work and the playback access information it corresponding. Since access information includes playback access information and record access information, in case it checks out in addition to playback, it becomes possible [adding a fixed limit] and is effective in the ability to protect a work.

[0072] Here, said record access information shows the upper limit of the count which checks out said number of check-out upper limits including the number of check-out upper limits. Since record access information contains the number of check-out upper limits, in case it checks out, it is effective in the ability to restrict check-out within said number of check-out upper limits.

[0073] Here, said access information shows further whether it permits that said migration access information moves a digital work and corresponding access information to the exterior including migration access information. Since access information includes playback access information and migration access information, in case it moves in addition to playback, it becomes possible [adding a fixed limit] and is effective in the ability to protect a work.

[0074] Here, said data control equipment includes a playback means to reproduce said digital work which read said digital work and corresponding access information, and read them from said work storage means further based on the read access information. According to this configuration, it is

effective in being reproducible, protecting a digital work.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] however, in the conventional music distribution system By adding a fixed limit to playback and the copy of a work using the control information which shows playback, authorization, disapproval of a copy, etc. which are contained in the negotiation contents distributed via the network Digital works, such as music currently recorded on the contents distributed via a network, without adding said control information of what can protect a work, CD, etc. Since the control information which generally is not enciphered and shows playback, authorization, disapproval of a copy, etc. is not added, either When a personal computer etc. is used, it can reproduce or copy without a limit of the digital work currently recorded on said CD etc., and there is a trouble that protection of a digital work cannot fully be performed.

[0006] protection of the negotiation contents distributed via the network in order that this invention might solve the above-mentioned trouble -- in addition, it aims at offering the record medium which is recording the data-control equipment which protects the digital work currently recorded on record media distributed via a network, without adding said control information, such as contents, CD, and CD-ROM, like said negotiation contents, the data-control approach, and data management.

[Translation done.]

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MEANS

[Means for Solving the Problem] In order to attain the above-mentioned object, this invention is data control equipment which matches and manages the digital work and access information which are circulating. An access information storage means by which the access information which includes at least the playback access information which shows whether playback of a digital work is permitted for every class of digital work is memorized beforehand, A work storage means and a work acquisition means to acquire the digital work with which it is circulating and access information is not added from the exterior, A formal distinction means to distinguish the class of acquired digital work, and the access information read-out means which reads the access information corresponding to the class of acquired digital work from said access information storage means, It is characterized by having the work write-in means which writes said acquired digital work in said work storage means, and the access information write-in means which matches with said digital work written in said work storage means, and writes said read access information in said work storage means.

[0008] Here, said work write-in means may be constituted so that said access information further read to said digital work written in said work storage means may be added. Here, said access information may show further whether said record access information permits check-out including record access information, and said check-out may be constituted so that it may be reproducing to the exterior a digital work and the playback access information it corresponding.

[0009] Here, including the number of check-out upper limits, said record access information may constitute said number of check-out upper limits so that the upper limit of the count to check out may be shown. Here, further, including migration access information, said access information may constitute said migration access information so that it may be shown whether it permits moving a digital work and corresponding access information to the exterior.

[0010] here, said data control equipment may be constituted so that a playback means to reproduce said digital work which carried out reading appearance of said digital work and the corresponding access information, and carried out reading appearance further based on the access information which carried out reading appearance from said work storage means may be included.

[0011]

[Embodiment of the Invention] 1 Explain the data control equipment 100 as a gestalt of one operation concerning gestalt 1 this invention of operation. Data control equipment 100 is connected to the networks 20, such as the Internet and a cable TV, through the communication line 10, as shown in drawing 1 . Moreover, Web server 30 which supplies the music information containing the contents about music is connected to the network 20. From Web server 30, data control equipment 100 acquires music information, and memorizes the acquired music information inside. Moreover, the music information which contains the contents about music from CD300 is read, and the read music information is memorized inside. Moreover, data control equipment 100 reproduces said memorized music information, and outputs it by the loudspeaker 154.

[0012] Thus, a user can enjoy music.

1.1 The configuration data control equipment 100 of data control equipment 100 consists of the control approach storage table 101 classified by data format, the access managed table 102 classified by data format, the data-format distinction section 103, the data registration section 104, a data

control table 105, and the data storage section 106, as shown in drawing 2 .

[0013] As shown in drawing 3 , data control equipment 100 consisted of a microprocessor 151, RAM (Random Access Memory) 152, a display 153, a loudspeaker 154, a hard disk 156, a keyboard 157, the communications department 158, and the read-out section 159, and, specifically, the communications department 158 is connecting it to a communication line 10. The computer program is memorized by the hard disk 156 and the data-format distinction section 103 and the data registration section 104 attain the function to it by performing said computer program memorized by the hard disk 156 by the microprocessor 151. Specifically, the control approach storage table 101 classified by data format, the access managed table 102 classified by data format, the data control table 105, and the data storage section 106 consist of hard disks 156.

(Data-format distinction section 103) The data-format distinction section 103 includes the communications department 158 connected with external Web server 30 via the networks 20, such as the Internet and a cable TV, and contains the read-out section 159 of the record medium of CD and DVD.

[0014] The data-format distinction section 103 takes out negotiation contents from external Web server 30 based on directions of a user. Said negotiation contents consist of a file A and a file B. File A contains encryption contents, such as an enciphered music content. File B contains the access information which shows authorization and the disapproval of playback of File A, sound recording, and migration, the cipher system which enciphered said encryption contents, and the decryption key of said encryption contents. The data-format distinction section 103 outputs the taken-out negotiation contents, the file name of File A, and the distinction information which shows that they are negotiation contents to the data registration section 104.

[0015] the data-format distinction section 103 -- moreover, based on directions of a user, reading appearance of the contents which are not enciphered from CD or DVD with which it was equipped is carried out, and the contents which carried out reading appearance and which are not enciphered, and the distinction information which shows CD or DVD are outputted to the data registration section 104. Here, the information which shows reproductive authorization and disapproval is also called playback access information, and shows whether playback of the contents which have the playback access information concerned is permitted.

[0016] Moreover, the information which shows authorization and the disapproval of sound recording is also called sound recording access information, and shows authorization and the disapproval of check-out. Moreover, sound recording access information contains the number of check-out upper limits which shows the count to which check-out is permitted. Here, check-out reproduces the playback access which reproduces contents and contents to other equipments from the equipment which has contents, and means reducing the number of check-out upper limits by one in the equipment which has said contents. Moreover, check-in returns the access which reproduces contents to the original equipment from other equipments, and means increasing the number of check-out upper limits one in the original equipment. At this time, it becomes impossible in equipment besides the above to use the reproduced contents.

[0017] Moreover, the information which shows authorization and the disapproval of migration is also called migration access information, and shows authorization and the disapproval of migration. Here, from the equipment with which migration has contents, contents and all access information are reproduced to other equipments, and it says that contents are permanently made impossible [an activity] in the original equipment to them.

(The control approach storage table 101 classified by data format) The control approach storage table 101 classified by data format has memorized two or more groups of data format 201, the data storage approach 202, a cipher system 203, the cryptographic key creation approach 204, and the access management method 205 and the access existence information 206, as shown in drawing 4 .

[0018] Data format 201 shows distinction of whether contents are the contents taken out via the network, or to be the contents read from record media, such as CD and DVD. "Negotiation contents" shows the contents taken out via the network, and "CD" and "DVD" show the contents read from CD and DVD, respectively.

[0019] The data storage approach 202 is a script which shows the approach of processing for contents. When data format 201 is "CD", the data storage approach 202 consists of a script shown below. Also about the case where data format 201 is "DVD", the data storage approach 202 is the same as that of the script shown below.

(Step 1) A cryptographic key is created using the cryptographic key creation approach 204 corresponding to the data format 201 which is "CD."

(Step 2) With the cipher system 203 corresponding to the data format 201 which is "CD", the contents read from CD are enciphered using said created cryptographic key, and encryption contents are generated.

(Step 3) It writes in the data storage section 106 by considering the generated encryption contents as File A.

(Step 4) According to the script currently recorded on the access management method 205, the access information 222 corresponding to the data format 221 which is "CD" is read from the access managed table 102 classified by data format.

(Step 5) According to the script currently recorded on the access management method 205, data ID 251, the encryption information 252, the access information 253, and a file name 254 are written in the data control table 105. Moreover, it writes in the data storage section 106 by considering the encryption information 252 and access information 253 as File B. Here, data ID 251 are the identifier of the proper generated for every contents of CD. The encryption information 252 consists of a cipher system 261 and a cryptographic key 262. A cipher system 261 is a cipher system determined in step 2. A cryptographic key 262 is a cryptographic key created in step 1. The file identification child of a file name 254 is an identifier of the proper generated for said every contents. The access information 253 is the access information 222 read from the access managed table 102 classified by data format.

[0020] When data format 201 is "negotiation contents", the data storage approach 202 consists of a script shown below.

(Step 1) The negotiation contents taken out via the network are written in the data storage section 106.

(Step 2) Data ID 251, the encryption information 252, the access information 253, and a file name 254 are written in the data control table 105. Here, data ID 251 are the file name of the file A taken out via the network. The encryption information 252 consists of a cipher system 261 and a cryptographic key 262. A cipher system 261 is a cipher system contained in the file B taken out via the network. A cryptographic key 262 is a decryption key contained in the file B taken out via the network. The access information 253 is the access information taken out via the network. A file name 254 is a file name of the file A taken out via the network.

[0021] A cipher system 203 shows the cipher system at the time of enciphering the contents read from "CD" or "DVD", when data format 201 is "CD" or "DVD." According to the example shown in this drawing, a cipher system is RSA when data format 201 is "CD" or "DVD." When data format 201 is "negotiation contents", the cipher system 203 is not memorized.

[0022] The cryptographic key creation approach 204 shows how to create the cryptographic key used with a cipher system 203. According to the example shown in this drawing, when data format 201 is "CD" or "DVD", the cryptographic key creation approach 204 is random-number generation. Furthermore, when data format 201 is "DVD", the die length of the music currently recorded on the head of DVD is considered as the seed in the case of random-number generation. When data format 201 is "negotiation contents", the cryptographic key creation approach 204 is not memorized.

[0023] The access management method 205 is a script about access information. When data format 201 is "CD", the access management method 205 consists of a script shown below. Also about the case where data format 201 is "DVD", the access management method 205 is the same as that of the script shown below.

(Step 1) The access information 222 on the access managed table 102 classified by data format is read, and it writes in the data control table 105.

[0024] When data format 201 is "negotiation contents", the access management method 205 is not

memorized. The access existence information 206 shows whether access information is added. The access existence information 206 shows that access information is not added in the case of "0", and, in the case of "1", it is shown that access information is added. Since access information is added when the access existence information 206 is "0" and data format 201 is "negotiation contents", since access information is not added in the example of the control approach storage table 101 classified by data format shown in drawing 4 when data format 201 is "CD" or "DVD", the access existence information 206 is "1."

(Access managed table 102 classified by data format) The access managed table 102 classified by data format has remembered two or more groups with the access information 222 to be data format 221, as shown in drawing 5.

[0025] Data format 221 consists of "CD" or "DVD" in which it is shown that they are the contents by which reading appearance was carried out from record media, such as CD and DVD. Data format 221 does not contain "negotiation contents." The access information 222 consists of playback access 231, sound recording access 232, and migration access 233. It is shown whether the playback access 231, the sound recording access 232, and the migration access 233 permit playback of contents, sound recording, and migration to a user, respectively. "It is possible" shows authorization of playback of contents, sound recording, and migration, and "it is impossible" shows disapproval for playback of contents, sound recording, and migration.

(Data control table 105) The data control table 105 has memorized two or more groups of data ID 251, the encryption information 252, the access information 253, and a file name 254, as shown in drawing 6.

[0026] Each class supports each contents and one to one which are memorized by the data storage section 106. Data ID 251 are an identifier which identifies each contents. The encryption information 252 consists of a cipher system 261 and a cryptographic key 262. A cipher system 261 is a cipher system used when the contents identified with data ID 251 were enciphered. A cryptographic key 262 is a cryptographic key used when the contents identified with data ID 251 were enciphered.

[0027] The access information 253 consists of playback access 271, sound recording access 272, and migration access 273. It is shown whether the playback access 271, the sound recording access 272, and the migration access 273 permit playback of the contents identified with data ID 251 to a user, respectively, sound recording, and migration. "It is possible" shows authorization of playback of contents, sound recording, and migration, and "it is impossible" shows disapproval for playback of contents, sound recording, and migration.

[0028] A file name 254 is a file stored in the data storage section 106, and is a file name of the file containing the contents identified with data ID 251. A file identification child, SEPARATE ".", and file classification "dat" are combined, and a file name 254 is constituted. The file identification child of a file name 254 has the same identifier as data ID 251.

[0029] In this drawing, a group 281 is an example in case data format is "CD", and a group 282 is an example in case data format is a "music content."

(Data registration section 104) The data registration section 104 receives negotiation contents, the file name of File A, and the distinction information that shows that they are negotiation contents from the data-format distinction section 103. Moreover, the data registration section 104 receives the contents which are not enciphered and the distinction information which shows CD or DVD.

[0030] The data registration section 104 will perform the script currently recorded on ejection and the taken-out data storage approach 202 from the control approach storage table 101 classified by data format in the data storage approach 202 corresponding to the data format 201 which is "negotiation contents", if the distinction information which shows that they are negotiation contents is received from the data-format distinction section 103.

[0031] The data registration section 104 will perform the script currently recorded on ejection and the taken-out data storage approach 202 from the control approach storage table 101 classified by data format in the data storage approach 202 corresponding to the data format 201 which is "CD", if the distinction information which shows that it is "CD" is received from the data-format distinction section 103. It is also the same as when the data registration section 104 receives the distinction

information which shows that it is "DVD."

(Data storage section 106) The data storage section 106 is the same file format as the negotiation contents which consist of a file A and a file B, and has memorized contents.

1.2 Explain actuation of the data control equipment 100 of data control equipment 100 of operation using the flow chart shown in drawing 7.

[0032] The data-format distinction section 103 from the exterior negotiation contents Ejection and the taken-out negotiation contents, The file name of File A and the distinction information which shows that they are negotiation contents are outputted to the data registration section 104. Or the contents which the data-format distinction section 103 read the contents which are not enciphered from CD or DVD with which it was equipped, and were read and which are not enciphered, The distinction information which shows CD or DVD is outputted to the data registration section 104. The data registration section 104 From the data-format distinction section 103, negotiation contents, the file name of File A, and the distinction information that shows that they are negotiation contents Reception, Or the data registration section 104 receives the contents which are not enciphered and the distinction information which shows CD or DVD (step S101).

[0033] If the distinction information which shows that they are negotiation contents is received from the data-format distinction section 103 (steps S103-S104), the data registration section 104 From the control approach storage table 101 classified by data format, the data storage approach 202 corresponding to the data format 201 which is "negotiation contents" Ejection, By performing the script currently recorded on the taken-out data storage approach 202 The file A containing the encryption contents taken out via the network is written in the data storage section 106 (step S105). Data ID 251, the encryption information 252, the access information 253, and a file name 254 are written in the data control table 105 (step S106).

[0034] If the distinction information which shows that it is "CD" is received from the data-format distinction section 103 (step S103), the data registration section 104 By performing the script currently recorded on ejection and the taken-out data storage approach 202 from the control approach storage table 101 classified by data format in the data storage approach 202 corresponding to the data format 201 which is "CD" Using the cryptographic key creation approach 204 corresponding to the data format 201 which is "CD", create a cryptographic key (step S111) and with the cipher system 203 corresponding to the data format 201 which is "CD" Encipher the contents read from CD using said created cryptographic key, and encryption contents are generated (step S112). The generated encryption contents are written in the data storage section 106 (step S113). According to the script currently recorded on the access management method 205, the access information 222 corresponding to the data format 221 which is "CD" is read from the access managed table 102 classified by data format (step S114). According to the script currently recorded on the access management method 205, data ID 251, the encryption information 252, the access information 253, and a file name 254 are written in the data control table 105. The encryption information 252 and the access information 253 are written in the data storage section 106 (step S115).

1.3 a conclusion -- in case playback, migration, a copy, etc. are processed like "negotiation contents" in this way according to the gestalt 1 of operation by enciphering contents and adding access information with the cipher system decided beforehand even case [like the contents which carried out reading appearance from CD with which the contents which are not enciphered are recorded], a work can be protected by adding a fixed limit.

[0035] Moreover, even when a new data format is developed and added, it can respond to a new data format easily by adding and writing a new data format, the data storage approach and a cipher system, the cryptographic key creation approach, an access management method, and access information in the control approach storage table 101 classified by data format, and the access managed table 102 classified by data format.

2 Explain another data control equipment 800 as a gestalt of one operation concerning gestalt 2 this invention of operation.

[0036] Data control equipment 800 is connected to the networks 20, such as the Internet and a cable TV, through the communication line 10, as shown in drawing 8. The accounting server 40 which

supplies the access [countervalue / in the case of using Web server 30 which supplies the music information containing the contents about music, and contents] information according to reception and a countervalue is connected to the network 20. Data control equipment 800 memorizes the music information which acquired music information and was acquired inside from Web server 30, pays the countervalue in the case of using contents to the accounting server 40, and receives the access information according to a countervalue. Moreover, the music information containing the contents about music is read from CD300, and read-out music information is memorized inside. Moreover, based on said received access information, data control equipment 800 reproduces said memorized music information, and outputs it by the loudspeaker 154.

[0037] Moreover, data control equipment 800 writes said memorized music information in a record medium 811 based on said received access information. The pocket player 401 is equipped by the user, and the record medium 811 with which music information was written in reproduces the music information written in the record medium 811, and outputs the pocket player 401 to headphone 402. Here, a record medium 811 is a semi-conductor memory card as an example.

[0038] Thus, a user can enjoy music.

2.1 The configuration data control equipment 800 of data control equipment 800 consists of the data-format distinction section 801, the data format section 802, the access managed table 803 classified by data format, the encryption section 804, the data storage section 805, two or more data-format data control table 807, the accounting section 808, the data control section 809, the format conversion section 810, the input section 812, and a control approach storage table 813 classified by data format, as shown in drawing 9 .

[0039] Like data control equipment 100, data control equipment 800 consisted of a microprocessor, RAM, a display, a loudspeaker, the record-medium I/O section, a hard disk, a keyboard, the communications department, and the read-out section, and, specifically, the communications department is connecting it to a communication line. The computer program is memorized by the hard disk and the data-format distinction section 801, the encryption section 804, the accounting section 808, the data control section 809, and the format conversion section 810 attain the function to it by performing said computer program memorized by said hard disk by said microprocessor. Moreover, the access managed table 803 classified by data format, the data storage section 805, and the two or more data-format data control control approach storage table 807 and 813 classified by data format consist of said hard disks for the data-format distinction section 801 and the accounting section 808 including said communications department.

(Input section 812) The input section 812 consists of said keyboards etc., and, specifically, receives from a user the input of the contents identifier which discriminates contents from the supplying agency information which shows the supply origin of contents, and the usage of contents.

[0040] Here, supplying agency information shows whether it is the exterior connected via a network, or they are record media, such as CD and DVD. The usage of contents is playback of contents, record, or migration. The input section 812 outputs the supplying agency information that the input was received, and the contents identifier which identifies contents to the data-format distinction section 801. Moreover, the input section 812 outputs the supplying agency information that the input was received, the contents identifier which identifies contents, and the usage of contents to the data control section 809.

(Data-format distinction section 801) The data-format distinction section 801 receives supplying agency information and the contents identifier which identifies contents from the input section 812.

[0041] The data-format distinction section 801 is connected with the exterior via networks, such as the Internet and a cable TV, like the data-format distinction section 103 of data control equipment 100. The data-format distinction section 801 will take out the negotiation contents identified by said received contents identifier from the exterior, if the supplying agency information which shows the exterior connected via a network is received from the input section 812. Said negotiation contents consist of a file A and a file B. File A contains encryption contents, such as an enciphered music content. File B contains the access information which shows authorization and the disapproval of playback of File A, sound recording, and migration, the cipher system which enciphered said

encryption contents, and the decryption key of said encryption contents. The data-format distinction section 801 outputs the taken-out negotiation contents, the file name of File A, and the distinction information which shows that they are negotiation contents to the data format section 802.

[0042] The data-format distinction section 801 is equipped with the read-out section of the record medium of CD and DVD again. If the supplying agency information which shows record media, such as CD and DVD, is received from the input section 812, from CD with which the aforementioned read-out section was equipped, or DVD, the data-format distinction section 801 will read the contents which are identified by said contents identifier and which are not enciphered, and will output the read contents which are not enciphered and the distinction information which shows CD or DVD to the data format section 802.

(Access managed table 803 classified by data format) Since the access managed table 803 classified by data format is the same as the access managed table 102 classified by data format of data control equipment 100, explanation is omitted.

(The control approach storage table 813 classified by data format) The control approach storage table 813 classified by data format has memorized two or more groups of data format 951, a cipher system 952, and the cryptographic key creation approach 953, as shown in drawing 10.

[0043] Distinction of whether data format 951 is the contents to which reading appearance of the contents was carried out from which record media, such as CD or DVD, is shown. "CD" and "DVD" show the contents by which reading appearance was carried out from CD and DVD, respectively. A cipher system 952 shows the cipher system at the time of enciphering the contents read from "CD" or "DVD", when data format 951 is "CD" or "DVD." According to the example shown in this drawing, when data format 951 is "CD" or "DVD", both cipher systems are RSA.

[0044] The cryptographic key creation approach 953 shows how to create the cryptographic key used with the cipher system shown by the cipher system 952. According to the example shown in this drawing, when data format 951 is "CD" or "DVD", both the cryptographic key creation approaches 953 are random-number generation. Furthermore, when data format 951 is "DVD", the die length of the music currently recorded on the head of DVD is considered as the seed in the case of random-number generation.

(Data format section 802) The data format section 802 receives negotiation contents, the file name of File A, and the distinction information that shows that they are negotiation contents from the data-format distinction section 801. Moreover, the data format section 802 receives the contents which are not enciphered and the distinction information which shows CD or DVD.

[0045] A random number will be generated and the data format section 802 will generate the character string of 6 figures which identifies contents based on the generated random number, if the distinction information which shows CD or DVD is received from the data-format distinction section 801. The data format section 802 reads the access information 222 corresponding to the data format 221 which is in agreement with said received distinction information from the access managed table 803 classified by data format.

[0046] Moreover, from the control approach storage table 813 classified by data format, the data format section 802 reads the cipher system 952 and the cryptographic key creation approach 953 corresponding to the data format 951 which is in agreement with said received distinction information, and generates a cryptographic key using the read cryptographic key creation approach 953. Next, the data format section 802 uses said generated character string of 6 figures as data ID 911. Make said read cipher system 952 into a cipher system 921, and said generated cryptographic key is made into a cryptographic key 922. said access information 222 which carried out reading appearance is made into the access information 913, said generated character string of 6 figures is made into a file identification child, said file identification child, SEPARITA ".", and file classification "dat" are combined, a file name 914 is generated, and data format 915 is set to "CD." Data ID 911, the encryption information 912, the access information 913, a file name 914, and data format 915 are written in two or more data-format data control table 807. Here, the encryption information 912 consists of a cipher system 921 and a cryptographic key 922.

[0047] Furthermore, the data format section 802 outputs the received contents which are not

enciphered, said read cipher system 952, said generated cryptographic key, and a file name 914 to the encryption section 804. If the distinction information which shows that they are negotiation contents is received from the data-format distinction section 801, the data format section 802 The file identification child who constitutes the file name of said received file A is used as data ID 911. The cipher system contained in said received negotiation contents is made into a cipher system 921. The decryption key contained in said received negotiation contents is made into a cryptographic key 922, and access information included in said received negotiation contents is made into the access information 913, make the file name of said received file A into a file name 914, and let data format 915 be "negotiation contents." Data ID 911, the encryption information 912, the access information 913, a file name 914, and data format 915 are written in two or more data-format data control table 807. Here, the encryption information 912 consists of a cipher system 921 and a cryptographic key 922. Next, the data format section 802 writes said received negotiation contents in the data storage section 805 by making the file name of said received file A into a file name.

(Encryption section 804) The encryption section 804 receives the contents which are not enciphered, a cipher system 952, said cryptographic key, and a file name 914 from the data format section 802.

[0048] If the contents which are not enciphered, a cipher system 952, said cryptographic key, and a file name 914 are received, the encryption section 804 will encipher the contents which are not enciphered with a cipher system 952 using said cryptographic key, and will write the encryption contents which generated and generated encryption contents in the data storage section 805 by making a file name 914 into a file name.

(Data storage section 805) The data storage section 805 has memorized the negotiation contents which the encryption contents generated by the encryption section 804 and the data format section 802 received.

(Two or more data-format data control table 807) Two or more data-format data control table 807 remembers groups with data format 915 to be data ID 911, the encryption information 912, the access information 913, and a file name 914, as shown in drawing 11.

[0049] Each class supports each contents and one to one which are memorized by the data storage section 805. The encryption information 912 consists of a cipher system 921 and a cryptographic key 922, and the access information 913 consists of playback access 923, sound recording access 924, and migration access 925.

[0050] Since it is the same as the data ID 251 of the data control table of data control equipment 100, a cipher system 261, a cryptographic key 262, the playback access 271, the sound recording access 272, the migration access 273, and a file name 254, data ID 911, a cipher system 921, a cryptographic key 922, the playback access 923, the sound recording access 924, the migration access 925, and a file name 914 omit explanation, respectively.

[0051] Data format 915 shows distinction of whether contents are the contents taken out via the network, or to be the contents read from record media, such as CD and DVD. "Negotiation contents" shows the contents taken out via the network, and "CD" and "DVD" show the contents read from CD and DVD, respectively.

[0052] In this drawing, a group 901 is an example in case data format is "CD", and a group 902 is an example in case data format is "negotiation contents."

(Accounting section 808) The accounting section 808 is connected with the exterior via networks, such as the Internet and a cable TV.

[0053] The accounting section 808 receives the contents identifier which identifies contents, and the usage of contents from the data control section 809. The accounting section 808 performs accounting which pays the countervalue in the case of using the contents identified by said received contents identifier by the usage of said received contents to the exterior, and receives the access information according to said usage from said exterior. The playback access of contents, sound recording access, and migration access are contained in access information.

[0054] The accounting section 808 transposes the access information 913 corresponding to the data ID 911 which have the same content as said received contents identifier in two or more data-format data control table 807 to the access information received from said exterior.

(Data control section 809) The data control section 809 receives supplying agency information, the contents identifier which identifies contents, and the usage of contents from the input section 812. [0055] The data control section 809 compares the access information 913 corresponding to the data ID 911 which have the same content as said received contents identifier in two or more data-format data control table 807 with said received usage, and utilization by said received usage judges how **** is. The data control section 809 will judge with it being available, if the playback access 923 is "possible" when said received usage is playback, and if the playback access 923 is "impossible", specifically, it will judge with utilization being impossible. If the sound recording access 924 is "possible" when said received usage is sound recording, it will judge with it being available, and if the sound recording access 924 is "impossible", it will judge with utilization being impossible. If the migration access 925 is "possible" when said received usage is migration, it will judge with it being available, and if the migration access 925 is "impossible", it will judge with utilization being impossible.

[0056] When that it can use judges, the data control section 809 directs to write in the contents which changed the contents which will be identified by said received contents identifier to the format conversion section 810 based on the sound recording access 924 if sound recording is possible into the format to the record medium equipped by the format conversion section 810, and were changed into said record medium, and outputs said received contents identifier to the format conversion section 810.

[0057] The data control section 809 ends processing, when that it cannot use judges and said supply [which was received] former information shows record media, such as CD and DVD. The data control section 809 outputs said received contents identifier and the usage of contents to the accounting section 808, when that it cannot use judges and it is shown that it is the exterior where said supply [which was received] former information is connected via a network. When the judgment of utilization is again performed after termination of the accounting by the accounting section 808 and that it can use judges, as mentioned above, the data control section 809 directs to write in the contents which changed into the format to a record medium the contents identified by said contents identifier to the format conversion section 810, and were changed into said record medium, and outputs said received contents identifier to the format conversion section 810.

(Format conversion section 810) The format conversion section 810 is equipped with the write-in section to a record medium 811.

[0058] The format conversion section 810 receives directions of format conversion, and a contents identifier from the data control section 809. If directions of format conversion are received from the data control section 809, the format conversion section 810 reads the contents identified by said received contents identifier from the data storage section 805, will be changed into the format to the record medium 811 equipped with the read contents by the format conversion section 810, and will write the changed contents in a record medium 811.

(Record medium 811) A record medium 811 is a record medium which consists of semiconductor memory, a DVD-RAM, etc., and the format conversion section 810 is equipped with it. A record medium 811 records the changed contents by the format conversion section 810. 2.2 Explain the actuation at the time of the data control equipment 800 of data control equipment 800 of operation taking out contents from record media, such as the exterior, or CD, DVD, using the flow chart shown in drawing 12 .

[0059] The input section 812 receives the input of supplying agency information, the contents identifier which identifies contents, and the usage of contents, and the data-format distinction section 801 reads the contents which are discriminated from ejection, CD, or DVD by said contents identifier in the negotiation contents discriminated from the exterior by said received contents identifier and which are not enciphered from a user (step S1001).

[0060] When the distinction information which shows CD or DVD is received from the data-format distinction section 801 (step S1002), the data format section 802 the data format section 802 The contents which read access information from the access managed table 803 classified by data format, read the cipher system and the cryptographic key creation approach from the control approach

storage table 813 classified by data format, generated the cryptographic key, and were received and which are not enciphered, Said read cipher system 952, said generated cryptographic key, and a file name 914 are outputted to the encryption section 804. The encryption section 804 The contents which are not enciphered are enciphered with a cipher system 952 using said cryptographic key. Encryption contents are generated and the generated encryption contents are written in the data storage section 805 using a file name 914 (step S1006). The data format section 802 Data ID 911, the encryption information 912, the access information 913, a file name 914, and data format 915 are written in two or more data-format data control table 807 (step S1007).

[0061] If the distinction information which shows that they are negotiation contents is received from the data-format distinction section 801 (steps S1002-S1003), the data format section 802 The data format section 802 on two or more data-format data control table 807 Data ID 911 The encryption information 912, the access information 913, a file name 914, and data format 915 are written in (step S1004). Next, the data format section 802 Said received negotiation contents are written in the data storage section 805 using the file name of said received file A (step S1005).

[0062] Next, the actuation at the time of data control equipment 800 writing contents in a record medium 811 is explained using the flow chart shown in drawing 13 . The contents identifier to which the data control section 809 discriminates supplying agency information and contents from the input section 812, The usage of contents reception (step S1101) and the data control section 809 The access information 913 corresponding to the data ID 911 which have the same content as said received contents identifier in two or more data-format data control table 807, When said received usage is compared, utilization by said received usage judges how **** is and that it can use judges, if sound recording is possible, based on (step S1102) and the sound recording access 924 The contents identified by said received contents identifier to the format conversion section 810 It changes into the format to the record medium with which the format conversion section 810 is equipped. It directs to write in the contents changed into said record medium, and said received contents identifier is outputted to the format conversion section 810. The format conversion section 810 The contents identified by said received contents identifier are read from the data storage section 805. It changes into the format to the record medium 811 equipped with the read contents by the format conversion section 810, and the changed contents are written in a record medium 811 (step S1103).

[0063] The data control section 809 ends (step S1104) and processing, when that it cannot use judges and it is shown that (step S1102) and said supply [which was received] former information are record media, such as CD and DVD. When that it cannot use judges, the data control section 809 (Step S1102), When it is shown that it is the exterior where said supply [which was received] former information is connected via a network, (step S1104) and said received contents identifier, The usage of contents is outputted to the accounting section 808. The accounting section 808 The accounting which pays the countervalue in the case of using the contents identified by said received contents identifier by the usage of said received contents Carry out to the exterior and the access information according to said usage From said outside to reception The access information 913 corresponding to the data ID 911 which have the same content as said received contents identifier in two or more data-format data control table 807 It transposes to the access information received from said exterior (step S1105), and control is moved to step S1102, and again, when carrying out a utilization judging and judging with it being available, the contents to a record medium 811 are written in.

2.3 If equipped with the record medium 811 with which contents are recorded, the pocket player 401 pocket player 401 will reproduce the contents which read contents and were read from a record medium 811, and will output them to headphone 402.

2.4 In Collecting, and Taking Out Contents via Network in this Way according to the Gestalt 2 of Operation In writing the negotiation contents which consist of contents, access information, and encryption information in the data storage section as it is and reading contents from record media, such as CD Since only encryption contents are written in the data storage section and data format, access information, and encryption information are written in two or more data-format data control

table. Access information and encryption information can be further added to the contents read from record media, such as CD, it is not necessary to change into the same file format as negotiation contents, and the load of equipment can be mitigated.

3 In the other gestalten of operation of the modification (1) above, data format, such as "DVD-Video", "DVD-Audio", and "being the negotiation contents of the data format of a class two or more", may be added instead of CD.

[0064] Moreover, although [a record medium 811] it is a semi-conductor memory card, they may be other record media, such as MD.

(2) In the gestalt of the above-mentioned operation, although [equipment] the contents to which it is enciphered and access information is added are acquired via networks, such as the Internet, though data control equipment acquires the contents to which it is not enciphered and access information is not added via a network, it is good. It sets on the control approach storage table 101 classified by data format to the contents of such a class. It has the same data storage approach as "CD" or "DVD", a cipher system, the cryptographic key creation approach, an access management method, and access existence information. The data registration section 104 Like "CD" or "DVD", an encryption key is created, contents are enciphered, encryption contents are written in the data storage section 106, and Data ID, encryption information, access information, and a file name are written in the data control table 105.

(3) You may make it be a degree in the gestalt of the above-mentioned operation. The format conversion section 810 writes the access information which consists of the playback access to which "it is possible" was set, sound recording access to which "it is impossible" was set, and migration access to which "it is impossible" was set further in a record medium 811. If equipped with the record medium 811 with which the access information which consists of contents, and the playback access to which "it is possible" was set, the sound recording access to which "it is impossible" was set and the migration access to which "it is impossible" was set is recorded, the pocket player 401 Access information is read from a record medium 811, playback access judges whether it is "possible", and if it is "possible", the contents currently recorded on the record medium 811 will be reproduced. If playback access is "impossible", playback of the contents currently recorded on the record medium 811 will not be performed.

(4) In the gestalt of the above-mentioned operation, the playback access and sound recording access which constitute access information, and migration access Although it is shown whether playback of contents, sound recording, and migration are permitted to a user, respectively, "it is possible" shows authorization of playback of contents, sound recording, and migration and "it is impossible" shows disapproval for playback of contents, sound recording, and migration It is good though playback access, sound recording access, and migration access are counts which permit playback of contents, sound recording, and migration to a user, respectively. It is permitted that a user performs playback of contents, sound recording, and migration within the limits of the aforementioned count. If playback of contents, sound recording, and migration are performed once, the value of 1 will be subtracted from the count of each.

[0065] Moreover, though said access information is length which permits playback, sound recording, and migration, it is good. It is permitted that a user performs playback of contents, sound recording, and migration within the permitted length.

(5) In the gestalt of the above-mentioned operation, although music information is acquired, memorized, reproduced, moved and recorded on videotape from record media, such as CD, through a network, don't restrict to music information. It is good though it is the multimedia information (for example, HTML document) containing static-image information, dynamic-image information, the film information that consists of voice and a dynamic image, a computer program, text, control information, text, a static image, a dynamic image, voice, etc.

(6) Though this invention is an approach shown above, it is good. Moreover, though it is the computer program which realizes these approaches by computer, it is good, and it is good though it is the digital signal which consists of said computer program.

[0066] Moreover, this invention is good also as what recorded said computer program or said digital

signal on the record medium in which computer reading is possible, for example, a floppy (trademark) disk, a hard disk, CD-ROM, MO and DVD, DVD-ROM, DVD-RAM, semiconductor memory, etc. Moreover, it is good though it is said computer program currently recorded on these record media, or said digital signal.

[0067] Moreover, this invention is good also as what is transmitted via the network where said computer program or said digital signal is used into a telecommunication circuit, wireless, or a wire communication circuit, and it uses the Internet representation. moreover, the thing for which said program is recorded on said record medium, and is transported -- or by transporting said program via a network etc., though carried out according to other independent computer systems, it is good.

(7) It is good though the gestalt and the above-mentioned modification of the above-mentioned implementation are combined, respectively.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the conceptual diagram showing the utilization gestalt of the data control equipment 100 as a gestalt of one operation concerning this invention.

[Drawing 2] It is the block diagram showing the configuration of data control equipment 100.

[Drawing 3] It is the block diagram showing the concrete configuration of data control equipment 100.

[Drawing 4] An example of the control approach storage table 101 classified by data format of data control equipment 100 is shown.

[Drawing 5] An example of the access managed table 102 classified by data format of data control equipment 100 is shown.

[Drawing 6] An example of the data control table 105 of data control equipment 100 is shown.

[Drawing 7] It is the flow chart which shows actuation of data control equipment 100.

[Drawing 8] It is the conceptual diagram showing the utilization gestalt of another data control equipment 800 as a gestalt of one operation concerning this invention.

[Drawing 9] It is the block diagram showing the configuration of data control equipment 800.

[Drawing 10] An example of the control approach storage table 813 classified by data format of data control equipment 800 is shown.

[Drawing 11] An example of two or more data-format data control table 807 of data control equipment 800 is shown.

[Drawing 12] It is the flow chart which shows the actuation at the time of data control equipment 800 taking out contents from record media, such as the exterior, or CD, DVD.

[Drawing 13] It is the flow chart which shows the actuation at the time of data control equipment 800 writing contents in a record medium 811.

[Description of Notations]

10 Communication Line

20 Network

30 Web Server

40 Accounting Server

100 Data Control Equipment

101 The Control Approach Storage Table Classified by Data Format

102 Access Managed Table Classified by Data Format

103 Data-Format Distinction Section

104 Data Registration Section

105 Data Control Table

106 Data Storage Section

800 Data Control Equipment

801 Data-Format Distinction Section

802 Data Format Section

803 Access Managed Table Classified by Data Format

804 Encryption Section

- 805 Data Storage Section
- 807 Two or More Data-Format Data Control Table
- 808 Accounting Section
- 809 Data Control Section
- 810 Format Conversion Section
- 811 Record Medium
- 812 Input Section
- 813 The Control Approach Storage Table Classified by Data Format

[Translation done.]

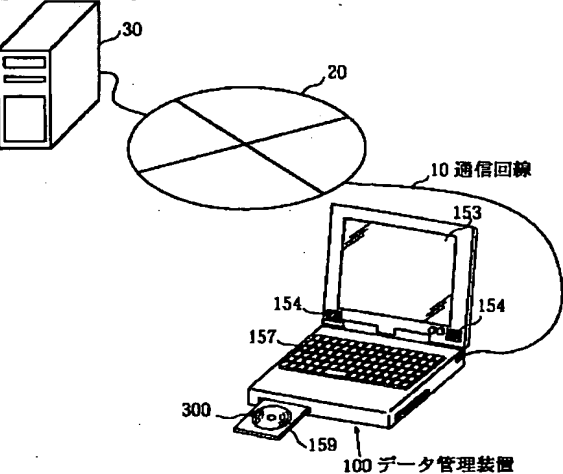
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- 2.**** shows the word which can not be translated.
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DRAWINGS

[Drawing 1]



[Drawing 4]

データ形式別制御方法記憶テーブル101

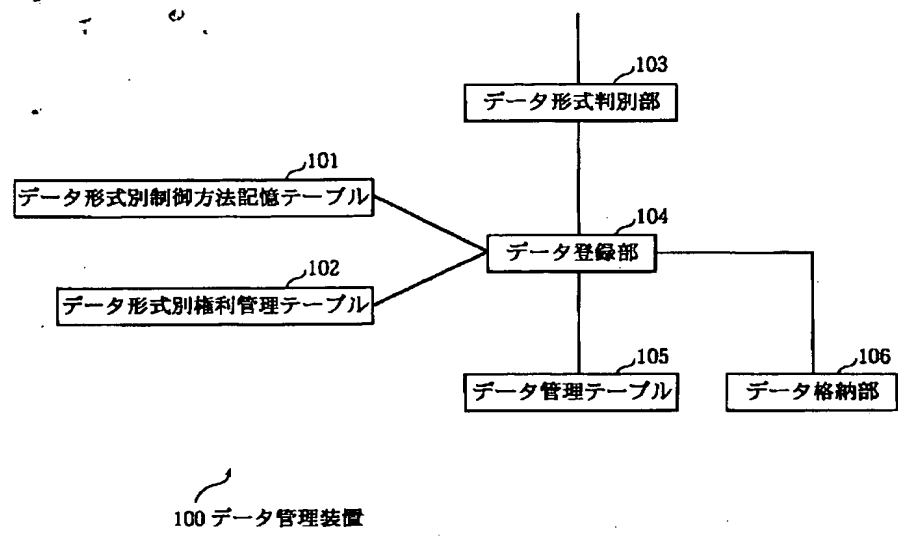
201 データ形式	202 データ格納方法	203 暗号方式	204 暗号鍵作成方法	205 権利管理方法	206 権利有無情報
CD	スクリプト	RSA	乱数生成	スクリプト	0
DVD	スクリプト	RSA	乱数生成(シードはDVDの1曲目の曲長)	スクリプト	0
流通コンテンツ	スクリプト	—	—	—	1

[Drawing 5]

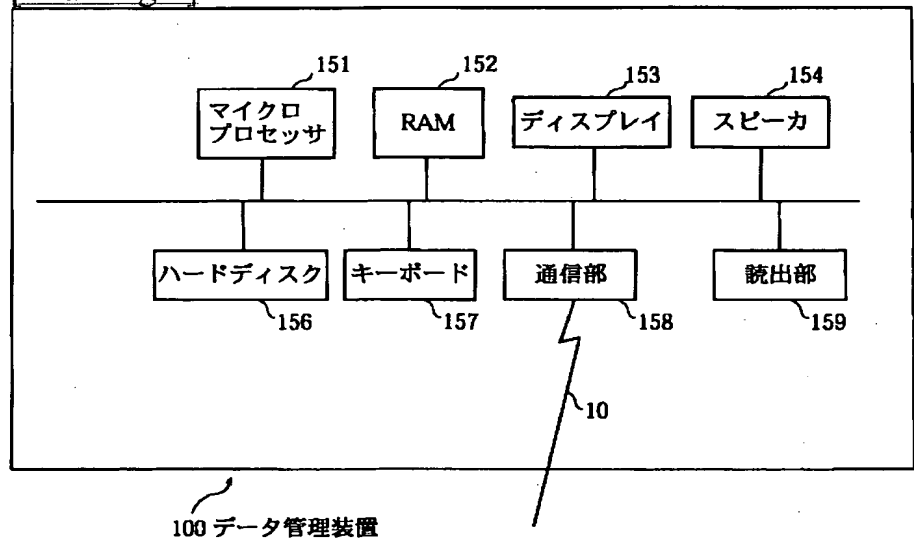
データ形式別権利管理テーブル102

221 データ形式	231 権利情報		
	232 再生権利	233 録音権利	222 移動権利
CD	可能	不可能	不可能
DVD	可能	不可能	不可能

[Drawing 2]



[Drawing 3]

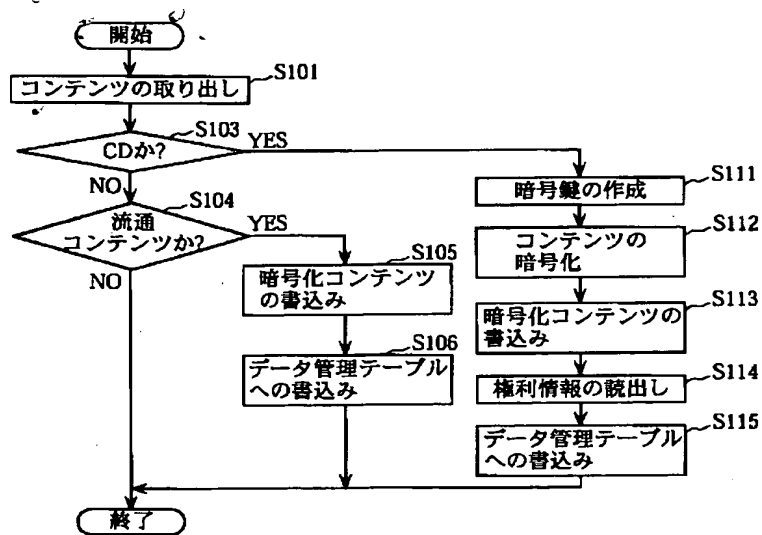


[Drawing 6]

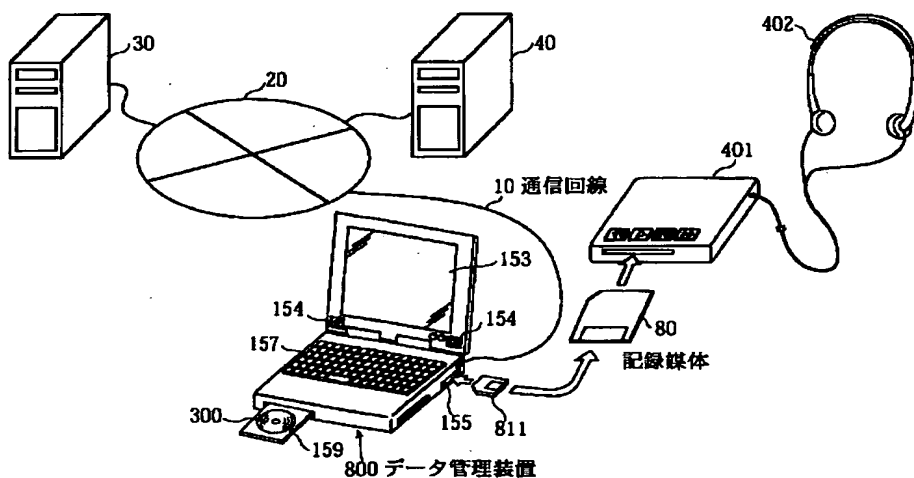
データ管理テーブル105

データID	暗号化情報	権利情報	ファイル名
	暗号方式	暗号鍵	再生権利
C78543	RSA	xa1bf87	可能
E62512	RSA	c46dg72	可能
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮

[Drawing 7]



[Drawing 8]



[Drawing 10]

データ形式別制御方法記憶テーブル813

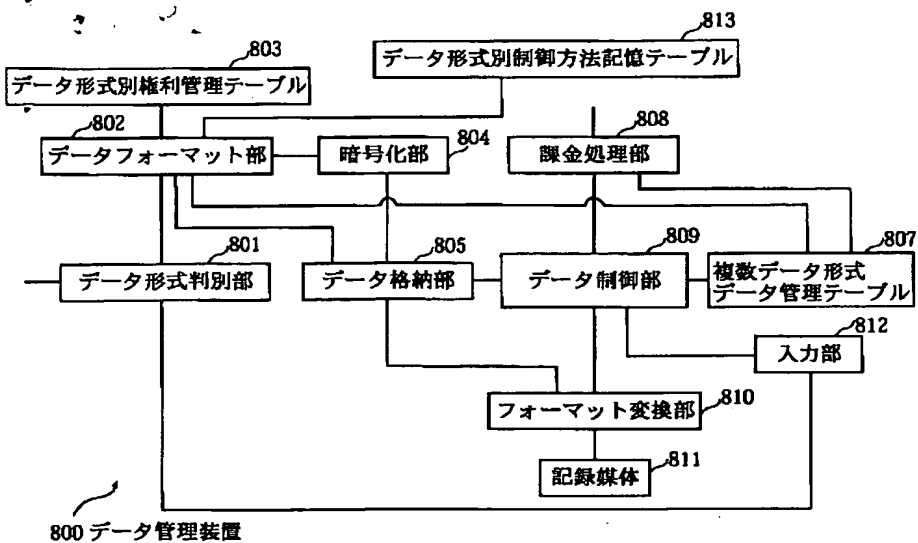
データ形式	暗号方式	暗号鍵作成方法
CD	RSA	乱数生成
DVD	RSA	乱数生成(シードはDVDの1曲目の曲長)

[Drawing 11]

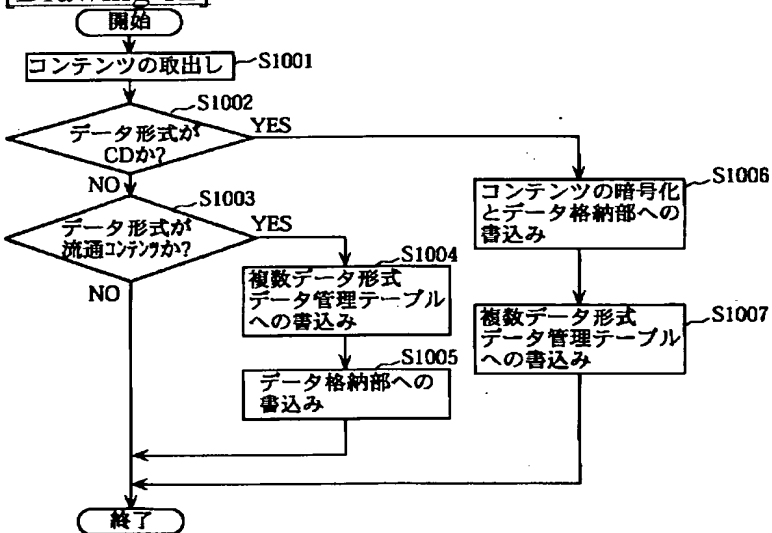
複数データ形式データ管理テーブル807

	911	921	912	922	913	923	924	925	914	915
	データID	暗号化情報		権利情報			ファイル名	データ形式		
		暗号方式	暗号鍵	再生権利	録音権利	移動権利				
901 902	C78543	RSA	45fg17a	可能	不可能	不可能	C78543.dat	CD		
	E62512	RSA	ce72hj2	可能	可能	可能	E62512.dat	流通コンテンツ		
	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・		

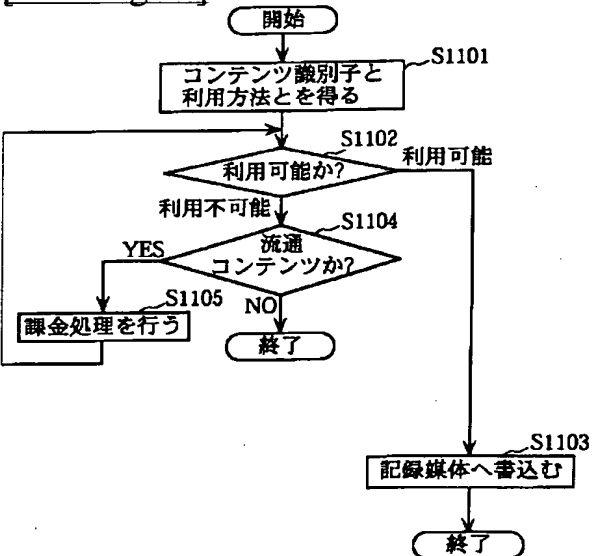
[Drawing 9]



[Drawing 12]



[Drawing 13]



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